

Amendment Pursuant to 37 CFR 1.111
U.S.S.N 10/761,129
October 17, 2005
Page 10 of 17

REMARKS

This is in response to the Official Action dated June 16, 2005. Reconsideration and allowance of the present application are respectfully requested.

Claim Amendments

Independent claims 1, 8 and 13 have been amended to remove limitations regarding the "shield" and to include limitations requiring a "single" sensor positioned so that a sensor "gray zone" lies within a "switch zone" of a "lock pin." Claims 1 and 8 have also been amended to include limitations requiring a sensor housing configured for attachment to a separate seat buckle housing. Support for these amendments may be found throughout the specification and drawings, e.g. at page 15, line 5 to page 17, line 8, FIGS. 1 and 34-35, etc. Claims 2, 3, 4, 9 and 10 have been amended for consistency with amended independent claims 1 and 8, for more particularly pointing out the invention, and/or for resolving issues of antecedent basis.

Claim 11 has been amended to include limitations of claim 12 and to remove limitations requiring a Hall Effect sensor and a snap-fit connection. Support for these amendments may be found throughout the specification and drawings, e.g. at page 15, line 5 to page 17, line 8, FIGS. 1 and 34-35, etc. Claim 12 has been cancelled without prejudice.

Withdrawn claims 15-20 have been cancelled without prejudice. New claims 21-27 have been added. Support for new claims 21-27 may be found throughout the specification and drawings, e.g. in originally filed claims 1, 8, 15, FIGS. 1, 18 and 19, etc. No new matter has been added in connection with any amendment made herein.

Amendment Pursuant to 37 CFR 1.111
U.S.S.N 10/761,129
October 17, 2005
Page 11 of 17

Affirmation of Election

Applicants hereby acknowledge and affirm the election, without traverse, to prosecute claims 1-14 as indicated in paragraphs 1 and 5 of the Official Action. To expedite prosecution, withdrawn claims 15-20 have been cancelled without prejudice. These claims may be prosecuted in a divisional application.

Claim Objections

Claim 13 has been objected to as including a typographical error in the word "sensor." The amendments to claim 13 include deletion of the misspelled word. Applicants respectfully request, therefore, that the objection be withdrawn upon reconsideration.

35 U.S.C. §112

Claims 3, 4 and 8-10 have been rejected under d under 35 U.S.C. § 112, second paragraph, as being indefinite. Claims 3, 4 and 8-10 have been amended in an earnest effort to correct the deficiencies cited by the Examiner. Applicants respectfully request that the Examiner's rejection of these claims under 35 U.S.C. § 112 be withdrawn upon reconsideration.

35 U.S.C. §102

Claims 1 and 4-6 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Höfelsauer (U.S. Patent No. 6,278,347). Applicants respectfully traverse this rejection.

Höfelsauer teaches a configuration including two switches 20, 30 disposed within the housing of a belt lock. Col. 3, line 66 to Col. 4, line 3. The switches are positioned within the

Amendment Pursuant to 37 CFR 1.111
U.S.S.N 10/761,129
October 17, 2005
Page 12 of 17

belt lock or belt lock housing at opposite extremes of the range of motion of a locking pin 44 carrying a magnet 42. Col 4, lines 1-3 and 28-37; Col. 2, lines 28-30. Each sensor changes state when the lock pin leaves the extreme travel position associated with the sensor. This is confirmed at Column 4, lines 37-40: "The absence of magnet 42 from the area of the second sensor 30 or presence in the area of the first sensor 20 leads in each case to a change in the switch condition of the sensors."

In complete contrast, independent claim 1 recites a "sensor housing" and "single sensor at least partially disposed in said sensor housing" that is "configured for attachment to a seat buckle housing of a seat buckle." The sensor includes a "gray zone range of magnetic flux being within a switch zone range of magnetic flux" imparted by a magnet on a lock pin as the lock pin travels through a switch zone. The lock pin "switch zone" extends between first and second lock pin positions wherein the locked pin achieves locked and unlocked conditions, respectively. Positioning the gray zone to be within the lock pin switch zone, as claimed, ensures that the sensor output indicates the correct state of the lock pin, as described, for example, at page 16, lines 10-20 and in FIG. 35:

Starting with the lock pin in a first condition, e.g., a locked condition, the Hall device may provide a first output indicative to the first lock pin condition. As the lock pin travels through the switch zone SZ the magnetic flux imparted to the Hall device may be within the Hall device gray zone GZ. By time the lock pin exits the switch zone SZ, i.e., completes the transition to a second, unlocked condition, the magnetic flux imparted to the Hall device is outside of the Hall device gray zone GZ, and the Hall device provides a second output indicating the second lock pin condition. If the Hall device gray zone GZ extends outside of the switch zone SZ, i.e., there is no cushion, there may be a portion of the lock pin travel in which the lock pin is in either a locked or unlocked condition, however because the gray zone extends out side of the switch zone SZ the Hall device may provide an output that is representative of an incorrect lock pin condition.

Amendment Pursuant to 37 CFR 1.111
U.S.S.N 10/761,129
October 17, 2005
Page 13 of 17

Applicants find nothing in Höfelsauer that teaches or suggests to provide a “single sensor” within a “sensor housing” and including a “gray zone range of magnetic flux being within a switch zone range of magnetic flux” imparted by a magnet on a lock pin as the lock pin travels through a switch zone, as recited in independent claim 1. In fact, Höfelsauer teaches away from use of a single sensor in teaching use of two sensors to achieve an error signal. See, e.g., Col. 4, lines 53-65, and Col. 2, lines 30-35. Moreover, Höfelsauer teaches that the two sensors be positioned within a belt lock or belt lock housing adjacent opposite extremes of lock pin range of motion. Col 4, lines 1-3 and 28-37; Col. 2, lines 28-30.

In view of the fact that Höfelsauer fails to teach or suggest, either explicitly or implicitly, a “single sensor” within a “sensor housing” and including a “gray zone range of magnetic flux being within a switch zone range of magnetic flux” imparted by a magnet on a lock pin as the lock pin travels through a switch zone, as recited in independent claim 1, Applicants respectfully submit that the rejection of claim 1 under 35 USC § 102(b) cannot stand. Claims 4-6 depend from claim 1. These claims are in condition for allowance by virtue of their dependency for the reasons adduced above, as well as for their own limitations. Accordingly, Applicants respectfully request that the rejection of claims 1 and 4-6 under 35 U.S.C. § 102(b), as being anticipated by Höfelsauer be withdrawn upon reconsideration.

35 U.S.C. §103

Claims 2, 3 and 7 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Höfelsauer. Applicants respectfully traverse this rejection.

Claims 2, 3 and 7 depend either directly or ultimately from claim 1. These claims are in

Amendment Pursuant to 37 CFR 1.111
U.S.S.N 10/761,129
October 17, 2005
Page 14 of 17

condition for allowance by virtue of their dependency for the reasons adduced above, as well as for their own limitations. Accordingly, Applicants respectfully request that the rejection of claims 2, 3 and 7 under 35 U.S.C. § 102(b), as being obvious in view of Höfelsauer be withdrawn upon reconsideration.

Claims 8-10, 13 and 14 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Höfelsauer in view of Katsuya et al. (JP 2001-224408) or Sasaki (US 4,943,087). Applicants respectfully traverse this rejection.

Independent claim 8, as amended, requires a "seat buckle housing" and "sensor housing coupled to said seat buckle housing." Independent claims 8 and 13 both require a "single sensor" including "gray zone range of magnetic flux being within a switch zone range of magnetic flux" imparted by a magnet on a lock pin as the lock pin travels through a switch zone. The lock pin "switch zone" extends between first and second lock pin positions wherein the locked pin achieves locked and unlocked conditions, respectively.

Höfelsauer fails to teach or suggest these essential limitations of independent claims 8 and 13, as discussed above relative to claim 1. Katsuya and Sasaki, alone or in combination, do not provide the missing teachings and have not been cited as such. Accordingly, Applicants respectfully submit that independent claims 8 and 13 could not have been obvious from the cited references at the time the invention was made.

Claims 9-10 depend from claim 8 and claim 14 depends from claim 13. These claims are in condition for allowance by virtue of their dependency for the reasons adduced above, as well as for their own limitations. Accordingly, Applicants respectfully request that the rejection of claims 8-10, 13 and 14 under 35 U.S.C. § 103(a) as being unpatentable over Höfelsauer in view

Amendment Pursuant to 37 CFR 1.111
U.S.S.N 10/761,129
October 17, 2005
Page 15 of 17

of Katsuya et al. (JP 2001-224408) or Sasaki (US 4,943,087) be withdrawn upon reconsideration.

Claims 11 and 12 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Barceló (GB 285630) in view of Katsuya et al. (JP 2001-224408) or Sasaki (US 4,943,087).

Applicants respectfully traverse this rejection.

Limitations from claim 12 have been incorporated into claim 11, and claim 12 has been cancelled. Independent claim 11, as amended, requires a "seat buckle housing" and a "sensor housing coupled to said seat buckle housing." A "magnetic shield" is secured to the "sensor housing" and "directly coupled to said seat buckle for directing magnetic flux imparted on said magnetic shield to said seat buckle." In the claimed configuration, flux imparted on the shield may be coupled to the seat buckle, as described, for example at page 9, lines 1-9 of the specification:

FIG. 17 is a plot of magnetic flux generated by an external magnet 1700 around a sensor consistent with the invention. As shown, the shield 110, 110a, or 110b may be designed to mate closely with the buckle 104 to allow sinking of interference magnetic flux from the shield to buckle 104. That is, external magnetic flux imparted on the shield may at least partially flow through the shield and into the buckle 104. In this way, external magnetic flux imparted on the Hall device may be reduced. The frame of the buckle 104 may generally be thicker than the shield 110, 110a, or 110b, and therefore better able to disperse the errant fields. Sinking of external magnetic flux flow in this manner may make it possible to use a weaker magnet 114, e.g., plastic bonded, which can be molded directly to the locking pin 106.

Applicants find nothing in Barceló that teaches or suggests a shield, as claimed, and Barceló has not been cited as providing such a teaching. Katsuya et al. teaches a buckle assembly including a case 12 with a magnetic shield 100 disposed on an inside periphery thereof. See Abstract. Sasaki teaches a Reed switch 30 disposed within a casing 40 that is secured to an anchor base 15. See Col. 4, lines 28-35 and FIG. 5.

Amendment Pursuant to 37 CFR 1.111
U.S.S.N 10/761,129
October 17, 2005
Page 16 of 17

The cited references appear to be devoid of any teaching or suggestion of a "magnetic shield" that is secured to a "sensor housing" and "directly coupled" to a separate seat buckle "for directing magnetic flux imparted on said magnetic shield to said seat buckle", as explicitly required by independent claim 11. Katsuya does not teach separate sensor and seat buckle housings, and Sasaki teaches a shield coupled to an anchor base 15.

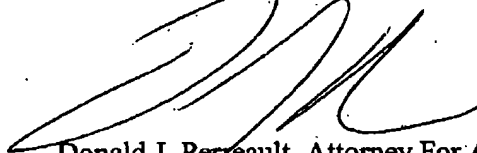
Since essential limitations of claim 11 cannot be found in any of the cited references, it is respectfully submitted that the invention of claim 11 could not have been obvious from the cited references at the time the invention was made. Accordingly, Applicants respectfully request that the rejection of claim 11-12 under 35 U.S.C. § 103(a) as being unpatentable over Barceló (GB 285630) in view of Katsuya et al. (JP 2001-224408) or Sasaki (US 4,943,087) be withdrawn upon reconsideration.

In light of the foregoing remarks, it is believed that all of the presently pending claims are in a condition for allowance. Allowance of the application is respectfully requested. In the event the Examiner deems personal contact desirable in disposition of this application, the Examiner is respectfully requested to call the undersigned attorney at (603) 668-6560.

Amendment Pursuant to 37 CFR 1.111
U.S.S.N 10/761,129
October 17, 2005
Page 17 of 17

No fees are believed to be due. In the event there are any fee deficiencies, please charge them (or credit any overpayment) to our Deposit Account No. 50-2121.

Respectfully submitted,



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